



# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**SE NE SEC. 19 T8N R60W 6th P.M.**

**HUNT FED 8-60 19-24-1**

**ORIGINAL WELLBORE**

**06 April, 2020**

**Plan: PROPOSAL #1**





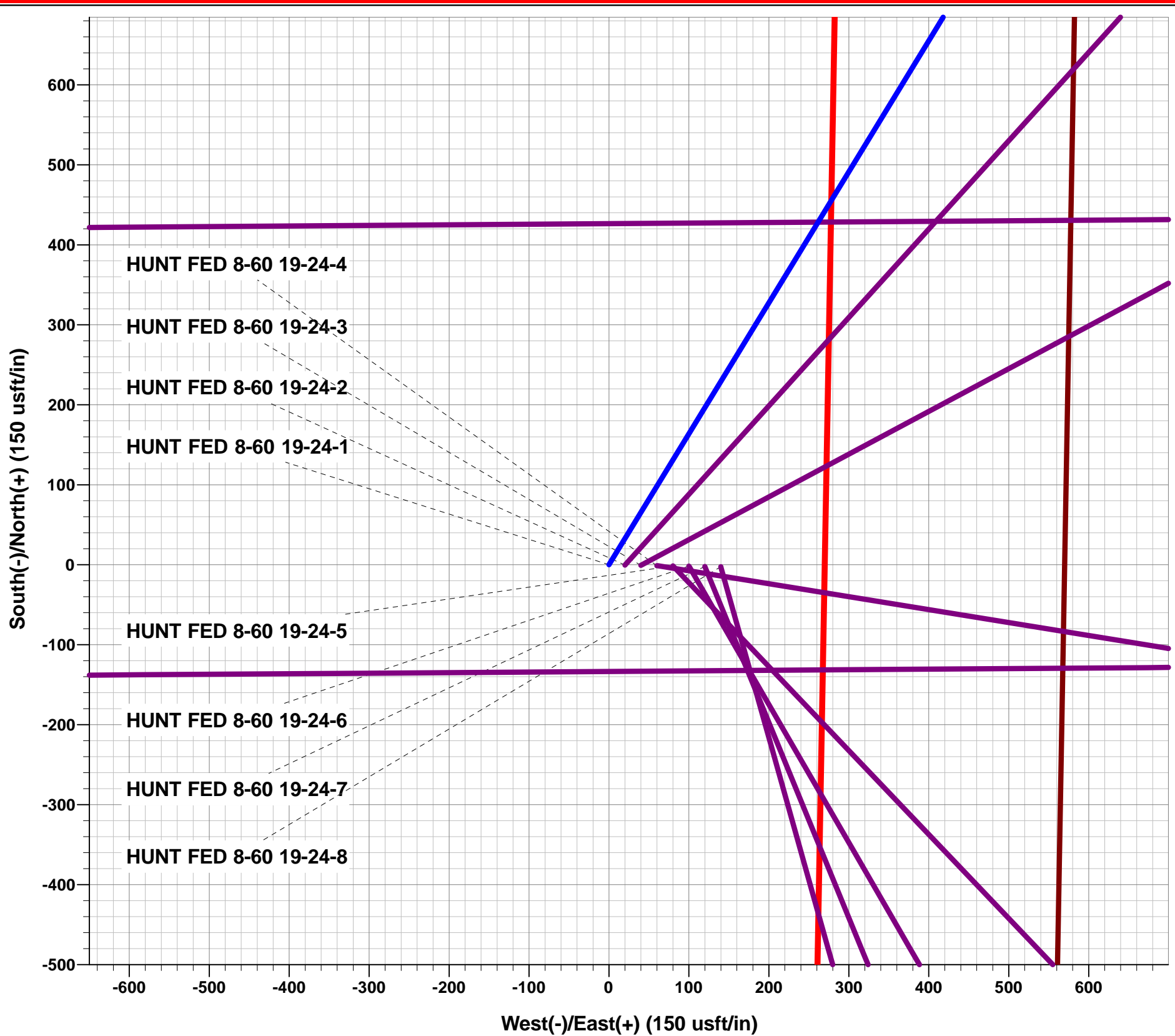
Project: WELD COUNTY, COLORADO (NAD 83)  
Site: SE NE SEC. 19 T8N R60W 6th P.M.  
Well: HUNT FED 8-60 19-24-1  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 1722ft FNL & 570ft FEL of Sec 19
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2029.08	24.58	31.41	1991.72	221.60	135.30	-103.46	259.64	EOB TO 24.58° INC
4787.14	24.58	31.41	4499.82	1200.83	733.17	-560.63	1406.96	END OF TANGENT
6016.22	0.00	0.00	5691.54	1422.43	868.47	-664.09	1666.60	EOD TO VERTICAL
6116.22	0.00	0.00	5791.54	1422.43	868.47	-664.09	1666.60	KOP (10°/100ft BUR)
7016.25	90.00	269.59	6364.50	1418.33	295.51	-97.16	2239.58	HZ LP: 305ft FNL & 300ft FEL of Sec 19
16992.45	90.00	269.60	6364.50	1347.37	-9680.45	9773.76	12215.78	BHL: 305ft FNL & 300ft FWL of Sec 24

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HUNT FED 8-60 19-24-1	5791.54	1422.43	868.47	40.654205	-104.124018
HZ LP - HUNT FED 8-60 19-24-1	6364.50	1418.33	295.51	40.654194	-104.126083
BHL - HUNT FED 8-60 19-24-1	6364.50	1347.37	-9680.45	40.653994	-104.162036

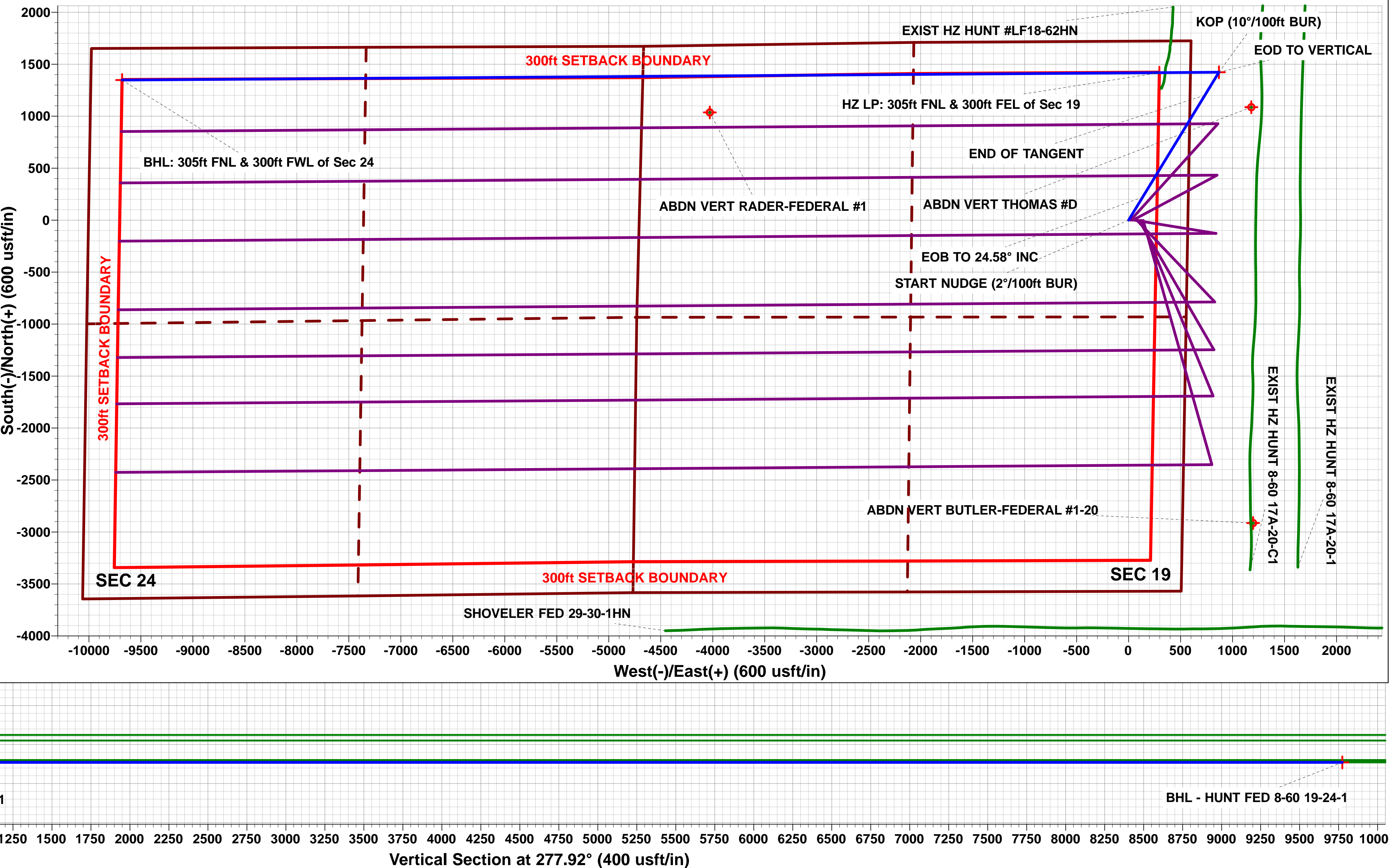
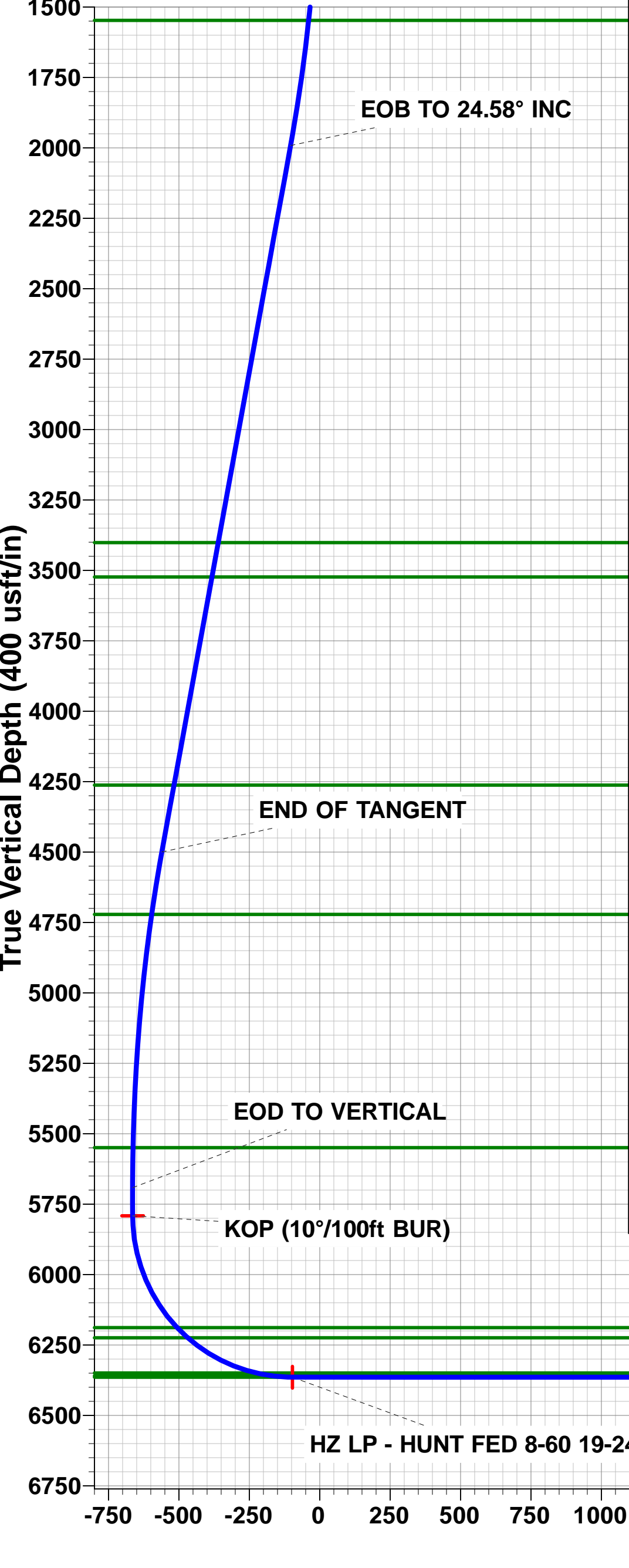
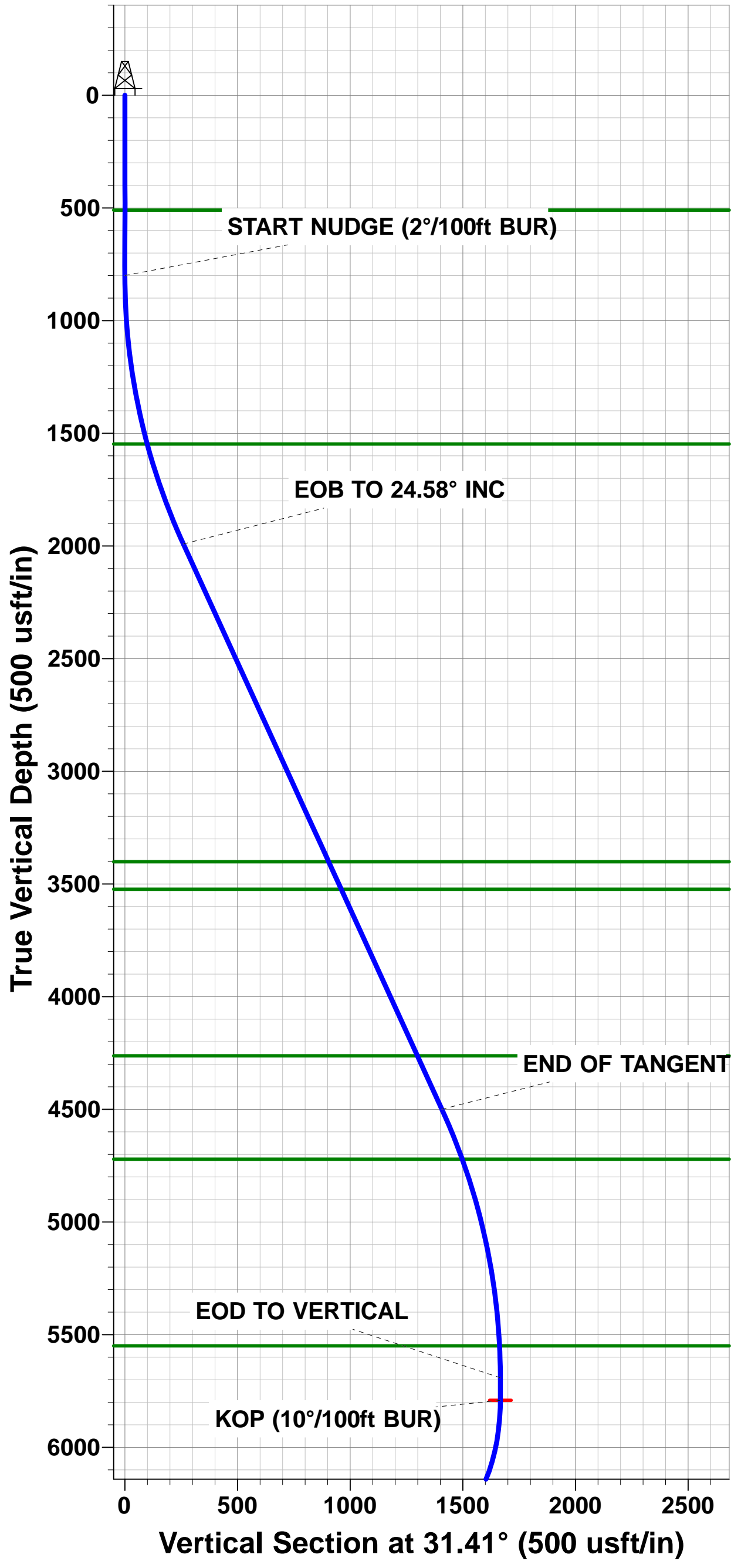


FORMATION TOP DETAILS

TVDPath	MDPath	Formation
509.50	509.50	Fox Hills Base
1547.50	1556.25	Pierre Shale Top
3401.50	3579.36	Richard Sandstone
3523.50	3713.52	Parkman Sandstone
4262.50	4526.17	Sussex Sandstone
4721.50	5026.62	Shannon Sandstone
5549.50	5874.13	TeePee Buttes
6188.50	6554.77	Sharon Springs
6224.50	6607.05	Niobrara Top
6349.50	6884.83	Niobrara B2 Chalk Top
6359.50	6940.48	Niobrara B2 Chalk Target Top
6364.50	7016.25	Niobrara B2 Chalk Landing Point

PROPOSED LOCAL COORDINATES:

SHL: 1722ft FNL & 570ft FEL of Sec 19  
HZ LP: 305ft FNL & 300ft FEL of Sec 19  
BHL: 305ft FNL & 300ft FWL of Sec 24



# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

<b>Project</b>	WELD COUNTY, COLORADO (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	SE NE SEC. 19 T8N R60W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,482,695.84 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,380,926.54 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10 ft
		<b>Latitude:</b>	40.650301
		<b>Longitude:</b>	-104.127148
		<b>Grid Convergence:</b>	0.89 °

<b>Well</b>	HUNT FED 8-60 19-24-1		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 1,482,695.84 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 3,380,926.54 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	usft
		<b>Latitude:</b>	40.650301
		<b>Longitude:</b>	-104.127148
		<b>Ground Level:</b>	4,932.50 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	2020-04-03	7.65	66.99	52,274.47587036

<b>Design</b>	PROPOSAL #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	6,364.50	0.00	0.00	277.92

<b>Plan Sections</b>											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,959.50	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	-4,159.50	0.00	0.00	0.00	0.00	0.00	0.00	
2,029.08	24.58	31.41	1,991.72	-2,967.78	221.60	135.30	2.00	2.00	0.00	31.41	
4,787.14	24.58	31.41	4,499.82	-459.68	1,200.83	733.17	0.00	0.00	0.00	0.00	
6,016.22	0.00	0.00	5,691.54	732.04	1,422.43	868.47	2.00	-2.00	0.00	180.00	
6,116.22	0.00	0.00	5,791.54	832.04	1,422.43	868.47	0.00	0.00	0.00	0.00	KOP - HUNT FED 8
7,016.25	90.00	269.59	6,364.50	1,405.00	1,418.33	295.51	10.00	10.00	-10.05	269.59	HZ LP - HUNT FED 8
16,992.45	90.00	269.60	6,364.50	1,405.00	1,347.37	-9,680.45	0.00	0.00	0.00	124.49	BHL - HUNT FED 8

# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>SHL: 1722ft FNL &amp; 570ft FEL of Sec 19</b>										
0.00	0.00	0.00	0.00	4,959.50	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,859.50	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,759.50	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,659.50	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,559.50	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,459.50	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>										
509.50	0.00	0.00	509.50	4,450.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	4,359.50	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	4,259.50	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
800.00	0.00	0.00	800.00	4,159.50	0.00	0.00	0.00	0.00	0.00	0.00
900.00	2.00	31.41	899.98	4,059.52	1.49	0.91	-0.70	2.00	2.00	0.00
1,000.00	4.00	31.41	999.84	3,959.66	5.96	3.64	-2.78	2.00	2.00	0.00
1,100.00	6.00	31.41	1,099.45	3,860.05	13.39	8.18	-6.25	2.00	2.00	0.00
1,200.00	8.00	31.41	1,198.70	3,760.80	23.80	14.53	-11.11	2.00	2.00	0.00
1,300.00	10.00	31.41	1,297.47	3,662.03	37.15	22.68	-17.34	2.00	2.00	0.00
1,400.00	12.00	31.41	1,395.62	3,563.88	53.43	32.62	-24.95	2.00	2.00	0.00
1,500.00	14.00	31.41	1,493.06	3,466.44	72.63	44.34	-33.91	2.00	2.00	0.00
<b>Pierre Shale Top</b>										
1,556.25	15.13	31.41	1,547.50	3,412.00	84.70	51.71	-39.54	2.00	2.00	0.00
1,600.00	16.00	31.41	1,589.64	3,369.86	94.72	57.83	-44.22	2.00	2.00	0.00
1,700.00	18.00	31.41	1,685.27	3,274.23	119.67	73.07	-55.87	2.00	2.00	0.00
1,800.00	20.00	31.41	1,779.82	3,179.68	147.46	90.03	-68.84	2.00	2.00	0.00
1,900.00	22.00	31.41	1,873.17	3,086.33	178.04	108.70	-83.12	2.00	2.00	0.00
2,000.00	24.00	31.41	1,965.21	2,994.29	211.39	129.06	-98.69	2.00	2.00	0.00
<b>EOB TO 24.58° INC</b>										
2,029.08	24.58	31.41	1,991.72	2,967.78	221.60	135.30	-103.46	2.00	2.00	0.00
2,100.00	24.58	31.41	2,056.21	2,903.29	246.78	150.67	-115.21	0.00	0.00	0.00
2,200.00	24.58	31.41	2,147.15	2,812.35	282.28	172.35	-131.79	0.00	0.00	0.00
2,300.00	24.58	31.41	2,238.09	2,721.41	317.79	194.03	-148.36	0.00	0.00	0.00
2,400.00	24.58	31.41	2,329.02	2,630.48	353.29	215.70	-164.94	0.00	0.00	0.00
2,500.00	24.58	31.41	2,419.96	2,539.54	388.80	237.38	-181.52	0.00	0.00	0.00
2,600.00	24.58	31.41	2,510.90	2,448.60	424.30	259.06	-198.09	0.00	0.00	0.00
2,700.00	24.58	31.41	2,601.83	2,357.67	459.80	280.74	-214.67	0.00	0.00	0.00
2,800.00	24.58	31.41	2,692.77	2,266.73	495.31	302.41	-231.24	0.00	0.00	0.00
2,900.00	24.58	31.41	2,783.71	2,175.79	530.81	324.09	-247.82	0.00	0.00	0.00
3,000.00	24.58	31.41	2,874.65	2,084.85	566.32	345.77	-264.40	0.00	0.00	0.00
3,100.00	24.58	31.41	2,965.58	1,993.92	601.82	367.44	-280.97	0.00	0.00	0.00
3,200.00	24.58	31.41	3,056.52	1,902.98	637.33	389.12	-297.55	0.00	0.00	0.00
3,300.00	24.58	31.41	3,147.46	1,812.04	672.83	410.80	-314.12	0.00	0.00	0.00
3,400.00	24.58	31.41	3,238.39	1,721.11	708.33	432.48	-330.70	0.00	0.00	0.00
3,500.00	24.58	31.41	3,329.33	1,630.17	743.84	454.15	-347.28	0.00	0.00	0.00
<b>Richard Sandstone</b>										
3,579.36	24.58	31.41	3,401.50	1,558.00	772.02	471.36	-360.43	0.00	0.00	0.00
3,600.00	24.58	31.41	3,420.27	1,539.23	779.34	475.83	-363.85	0.00	0.00	0.00
3,700.00	24.58	31.41	3,511.20	1,448.30	814.85	497.51	-380.43	0.00	0.00	0.00
<b>Parkman Sandstone</b>										
3,713.52	24.58	31.41	3,523.50	1,436.00	819.65	500.44	-382.67	0.00	0.00	0.00
3,800.00	24.58	31.41	3,602.14	1,357.36	850.35	519.19	-397.00	0.00	0.00	0.00
3,900.00	24.58	31.41	3,693.08	1,266.42	885.86	540.86	-413.58	0.00	0.00	0.00
4,000.00	24.58	31.41	3,784.01	1,175.49	921.36	562.54	-430.16	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.00	24.58	31.41	3,874.95	1,084.55	956.87	584.22	-446.73	0.00	0.00	0.00
4,200.00	24.58	31.41	3,965.89	993.61	992.37	605.90	-463.31	0.00	0.00	0.00
4,300.00	24.58	31.41	4,056.83	902.67	1,027.87	627.57	-479.88	0.00	0.00	0.00
4,400.00	24.58	31.41	4,147.76	811.74	1,063.38	649.25	-496.46	0.00	0.00	0.00
4,500.00	24.58	31.41	4,238.70	720.80	1,098.88	670.93	-513.03	0.00	0.00	0.00
<b>Sussex Sandstone</b>										
<b>4,526.17</b>	<b>24.58</b>	<b>31.41</b>	<b>4,262.50</b>	<b>697.00</b>	<b>1,108.18</b>	<b>676.60</b>	<b>-517.37</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,600.00	24.58	31.41	4,329.64	629.86	1,134.39	692.60	-529.61	0.00	0.00	0.00
4,700.00	24.58	31.41	4,420.57	538.93	1,169.89	714.28	-546.19	0.00	0.00	0.00
<b>END OF TANGENT</b>										
<b>4,787.14</b>	<b>24.58</b>	<b>31.41</b>	<b>4,499.82</b>	<b>459.68</b>	<b>1,200.83</b>	<b>733.17</b>	<b>-560.63</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,800.00	24.32	31.41	4,511.52	447.98	1,205.37	735.95	-562.75	2.00	-2.00	0.00
4,900.00	22.32	31.41	4,603.35	356.15	1,239.17	756.58	-578.53	2.00	-2.00	0.00
5,000.00	20.32	31.41	4,696.49	263.01	1,270.20	775.53	-593.02	2.00	-2.00	0.00
<b>Shannon Sandstone</b>										
<b>5,026.62</b>	<b>19.79</b>	<b>31.41</b>	<b>4,721.50</b>	<b>238.00</b>	<b>1,277.99</b>	<b>780.28</b>	<b>-596.66</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,100.00	18.32	31.41	4,790.86	168.64	1,298.44	792.77	-606.20	2.00	-2.00	0.00
5,200.00	16.32	31.41	4,886.31	73.19	1,323.86	808.29	-618.07	2.00	-2.00	0.00
5,300.00	14.32	31.41	4,982.75	-23.25	1,346.41	822.06	-628.60	2.00	-2.00	0.00
5,400.00	12.32	31.41	5,080.06	-120.56	1,366.08	834.07	-637.78	2.00	-2.00	0.00
5,500.00	10.32	31.41	5,178.10	-218.60	1,382.84	844.30	-645.61	2.00	-2.00	0.00
5,600.00	8.32	31.41	5,276.78	-317.28	1,396.67	852.74	-652.06	2.00	-2.00	0.00
5,700.00	6.32	31.41	5,375.96	-416.46	1,407.55	859.38	-657.14	2.00	-2.00	0.00
5,800.00	4.32	31.41	5,475.52	-516.02	1,415.47	864.22	-660.84	2.00	-2.00	0.00
<b>TeePee Buttes</b>										
<b>5,874.13</b>	<b>2.84</b>	<b>31.41</b>	<b>5,549.50</b>	<b>-590.00</b>	<b>1,419.42</b>	<b>866.63</b>	<b>-662.68</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,900.00	2.32	31.41	5,575.35	-615.85	1,420.42	867.24	-663.15	2.00	-2.00	0.00
6,000.00	0.32	31.41	5,675.32	-715.82	1,422.39	868.45	-664.07	2.00	-2.00	0.00
<b>EOD TO VERTICAL</b>										
<b>6,016.22</b>	<b>0.00</b>	<b>0.00</b>	<b>5,691.54</b>	<b>-732.04</b>	<b>1,422.43</b>	<b>868.47</b>	<b>-664.09</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
6,100.00	0.00	0.00	5,775.32	-815.82	1,422.43	868.47	-664.09	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
<b>6,116.22</b>	<b>0.00</b>	<b>0.00</b>	<b>5,791.54</b>	<b>-832.04</b>	<b>1,422.43</b>	<b>868.47</b>	<b>-664.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,200.00	8.38	269.59	5,875.02	-915.52	1,422.39	862.36	-658.04	10.00	10.00	0.00
6,300.00	18.38	269.59	5,972.18	-1,012.68	1,422.22	839.25	-635.18	10.00	10.00	0.00
6,400.00	28.38	269.59	6,063.86	-1,104.36	1,421.94	799.62	-595.97	10.00	10.00	0.00
6,500.00	38.38	269.59	6,147.26	-1,187.76	1,421.54	744.68	-541.60	10.00	10.00	0.00
<b>Sharon Springs</b>										
<b>6,554.77</b>	<b>43.85</b>	<b>269.59</b>	<b>6,188.50</b>	<b>-1,229.00</b>	<b>1,421.29</b>	<b>708.68</b>	<b>-505.98</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,600.00	48.38	269.59	6,219.85	-1,260.35	1,421.05	676.09	-473.73	10.00	10.00	0.00
<b>Niobrara Top</b>										
<b>6,607.05</b>	<b>49.08</b>	<b>269.59</b>	<b>6,224.50</b>	<b>-1,265.00</b>	<b>1,421.01</b>	<b>670.79</b>	<b>-468.49</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,700.00	58.38	269.59	6,279.43	-1,319.93	1,420.48	595.93	-394.42	10.00	10.00	0.00
6,800.00	68.38	269.59	6,324.18	-1,364.68	1,419.84	506.65	-306.08	10.00	10.00	0.00
<b>Niobrara B2 Chalk Top</b>										
<b>6,884.83</b>	<b>76.86</b>	<b>269.59</b>	<b>6,349.50</b>	<b>-1,390.00</b>	<b>1,419.26</b>	<b>425.77</b>	<b>-226.05</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,900.00	78.38	269.59	6,352.75	-1,393.25	1,419.15	410.95	-211.39	10.00	10.00	0.00
<b>Niobrara B2 Chalk Target Top</b>										
<b>6,940.48</b>	<b>82.43</b>	<b>269.59</b>	<b>6,359.50</b>	<b>-1,400.00</b>	<b>1,418.87</b>	<b>371.05</b>	<b>-171.91</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,000.00	88.38	269.59	6,364.27	-1,404.77	1,418.44	311.75	-113.23	10.00	10.00	0.00
<b>HZ LP: 305ft FNL &amp; 300ft FEL of Sec 19 - Niobrara B2 Chalk Landing Point</b>										
<b>7,016.25</b>	<b>90.00</b>	<b>269.59</b>	<b>6,364.50</b>	<b>-1,405.00</b>	<b>1,418.33</b>	<b>295.51</b>	<b>-97.16</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,100.00	90.00	269.59	6,364.50	-1,405.00	1,417.73	211.75	-14.29	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,200.00	90.00	269.59	6,364.49	-1,404.99	1,417.01	111.76	84.65	0.00	0.00	0.00
7,300.00	90.00	269.59	6,364.49	-1,404.99	1,416.30	11.76	183.60	0.00	0.00	0.00
7,400.00	90.00	269.59	6,364.49	-1,404.99	1,415.58	-88.24	282.54	0.00	0.00	0.00
7,500.00	90.00	269.59	6,364.49	-1,404.99	1,414.87	-188.24	381.48	0.00	0.00	0.00
7,600.00	90.00	269.59	6,364.48	-1,404.98	1,414.15	-288.23	480.43	0.00	0.00	0.00
7,700.00	90.00	269.59	6,364.48	-1,404.98	1,413.44	-388.23	579.37	0.00	0.00	0.00
7,800.00	90.00	269.59	6,364.48	-1,404.98	1,412.72	-488.23	678.32	0.00	0.00	0.00
7,900.00	90.00	269.59	6,364.48	-1,404.98	1,412.01	-588.23	777.26	0.00	0.00	0.00
8,000.00	90.00	269.59	6,364.47	-1,404.97	1,411.29	-688.22	876.21	0.00	0.00	0.00
8,100.00	90.00	269.59	6,364.47	-1,404.97	1,410.58	-788.22	975.15	0.00	0.00	0.00
8,200.00	90.00	269.59	6,364.47	-1,404.97	1,409.86	-888.22	1,074.09	0.00	0.00	0.00
8,300.00	90.00	269.59	6,364.47	-1,404.97	1,409.15	-988.21	1,173.04	0.00	0.00	0.00
8,400.00	90.00	269.59	6,364.46	-1,404.96	1,408.43	-1,088.21	1,271.98	0.00	0.00	0.00
8,500.00	90.00	269.59	6,364.46	-1,404.96	1,407.72	-1,188.21	1,370.93	0.00	0.00	0.00
8,600.00	90.00	269.59	6,364.46	-1,404.96	1,407.00	-1,288.21	1,469.87	0.00	0.00	0.00
8,700.00	90.00	269.59	6,364.46	-1,404.96	1,406.29	-1,388.20	1,568.81	0.00	0.00	0.00
8,800.00	90.00	269.59	6,364.45	-1,404.95	1,405.57	-1,488.20	1,667.76	0.00	0.00	0.00
8,900.00	90.00	269.59	6,364.45	-1,404.95	1,404.86	-1,588.20	1,766.70	0.00	0.00	0.00
9,000.00	90.00	269.59	6,364.45	-1,404.95	1,404.15	-1,688.20	1,865.65	0.00	0.00	0.00
9,100.00	90.00	269.59	6,364.45	-1,404.95	1,403.43	-1,788.19	1,964.59	0.00	0.00	0.00
9,200.00	90.00	269.59	6,364.45	-1,404.95	1,402.72	-1,888.19	2,063.54	0.00	0.00	0.00
9,300.00	90.00	269.59	6,364.45	-1,404.95	1,402.00	-1,988.19	2,162.48	0.00	0.00	0.00
9,400.00	90.00	269.59	6,364.44	-1,404.94	1,401.29	-2,088.19	2,261.42	0.00	0.00	0.00
9,500.00	90.00	269.59	6,364.44	-1,404.94	1,400.58	-2,188.18	2,360.37	0.00	0.00	0.00
9,600.00	90.00	269.59	6,364.44	-1,404.94	1,399.86	-2,288.18	2,459.31	0.00	0.00	0.00
9,700.00	90.00	269.59	6,364.44	-1,404.94	1,399.15	-2,388.18	2,558.26	0.00	0.00	0.00
9,800.00	90.00	269.59	6,364.44	-1,404.94	1,398.44	-2,488.18	2,657.20	0.00	0.00	0.00
9,900.00	90.00	269.59	6,364.44	-1,404.94	1,397.72	-2,588.17	2,756.15	0.00	0.00	0.00
10,000.00	90.00	269.59	6,364.44	-1,404.94	1,397.01	-2,688.17	2,855.09	0.00	0.00	0.00
10,100.00	90.00	269.59	6,364.43	-1,404.93	1,396.30	-2,788.17	2,954.04	0.00	0.00	0.00
10,200.00	90.00	269.59	6,364.43	-1,404.93	1,395.58	-2,888.17	3,052.98	0.00	0.00	0.00
10,300.00	90.00	269.59	6,364.43	-1,404.93	1,394.87	-2,988.16	3,151.92	0.00	0.00	0.00
10,400.00	90.00	269.59	6,364.43	-1,404.93	1,394.16	-3,088.16	3,250.87	0.00	0.00	0.00
10,500.00	90.00	269.59	6,364.43	-1,404.93	1,393.45	-3,188.16	3,349.81	0.00	0.00	0.00
10,600.00	90.00	269.59	6,364.43	-1,404.93	1,392.73	-3,288.16	3,448.76	0.00	0.00	0.00
10,700.00	90.00	269.59	6,364.43	-1,404.93	1,392.02	-3,388.15	3,547.70	0.00	0.00	0.00
10,800.00	90.00	269.59	6,364.43	-1,404.93	1,391.31	-3,488.15	3,646.65	0.00	0.00	0.00
10,900.00	90.00	269.59	6,364.43	-1,404.93	1,390.60	-3,588.15	3,745.59	0.00	0.00	0.00
11,000.00	90.00	269.59	6,364.43	-1,404.93	1,389.88	-3,688.15	3,844.54	0.00	0.00	0.00
11,100.00	90.00	269.59	6,364.43	-1,404.93	1,389.17	-3,788.14	3,943.48	0.00	0.00	0.00
11,200.00	90.00	269.59	6,364.42	-1,404.92	1,388.46	-3,888.14	4,042.42	0.00	0.00	0.00
11,300.00	90.00	269.59	6,364.42	-1,404.92	1,387.75	-3,988.14	4,141.37	0.00	0.00	0.00
11,400.00	90.00	269.59	6,364.42	-1,404.92	1,387.03	-4,088.14	4,240.31	0.00	0.00	0.00
11,500.00	90.00	269.59	6,364.42	-1,404.92	1,386.32	-4,188.13	4,339.26	0.00	0.00	0.00
11,600.00	90.00	269.59	6,364.42	-1,404.92	1,385.61	-4,288.13	4,438.20	0.00	0.00	0.00
11,700.00	90.00	269.59	6,364.42	-1,404.92	1,384.90	-4,388.13	4,537.15	0.00	0.00	0.00
11,800.00	90.00	269.59	6,364.42	-1,404.92	1,384.19	-4,488.13	4,636.09	0.00	0.00	0.00
11,900.00	90.00	269.59	6,364.42	-1,404.92	1,383.48	-4,588.12	4,735.04	0.00	0.00	0.00
12,000.00	90.00	269.59	6,364.42	-1,404.92	1,382.77	-4,688.12	4,833.98	0.00	0.00	0.00
12,100.00	90.00	269.59	6,364.42	-1,404.92	1,382.05	-4,788.12	4,932.93	0.00	0.00	0.00
12,200.00	90.00	269.59	6,364.42	-1,404.92	1,381.34	-4,888.12	5,031.87	0.00	0.00	0.00
12,300.00	90.00	269.59	6,364.42	-1,404.92	1,380.63	-4,988.11	5,130.82	0.00	0.00	0.00
12,400.00	90.00	269.59	6,364.42	-1,404.92	1,379.92	-5,088.11	5,229.76	0.00	0.00	0.00
12,500.00	90.00	269.59	6,364.42	-1,404.92	1,379.21	-5,188.11	5,328.71	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,600.00	90.00	269.59	6,364.42	-1,404.92	1,378.50	-5,288.11	5,427.65	0.00	0.00	0.00
12,700.00	90.00	269.59	6,364.42	-1,404.92	1,377.79	-5,388.10	5,526.59	0.00	0.00	0.00
12,800.00	90.00	269.59	6,364.42	-1,404.92	1,377.08	-5,488.10	5,625.54	0.00	0.00	0.00
12,900.00	90.00	269.59	6,364.43	-1,404.93	1,376.37	-5,588.10	5,724.48	0.00	0.00	0.00
13,000.00	90.00	269.59	6,364.43	-1,404.93	1,375.66	-5,688.10	5,823.43	0.00	0.00	0.00
13,100.00	90.00	269.59	6,364.43	-1,404.93	1,374.95	-5,788.09	5,922.37	0.00	0.00	0.00
13,200.00	90.00	269.59	6,364.43	-1,404.93	1,374.24	-5,888.09	6,021.32	0.00	0.00	0.00
13,300.00	90.00	269.59	6,364.43	-1,404.93	1,373.53	-5,988.09	6,120.26	0.00	0.00	0.00
13,400.00	90.00	269.59	6,364.43	-1,404.93	1,372.82	-6,088.09	6,219.21	0.00	0.00	0.00
13,500.00	90.00	269.59	6,364.43	-1,404.93	1,372.11	-6,188.08	6,318.15	0.00	0.00	0.00
13,600.00	90.00	269.59	6,364.43	-1,404.93	1,371.40	-6,288.08	6,417.10	0.00	0.00	0.00
13,700.00	90.00	269.59	6,364.43	-1,404.93	1,370.69	-6,388.08	6,516.04	0.00	0.00	0.00
13,800.00	90.00	269.59	6,364.43	-1,404.93	1,369.98	-6,488.08	6,614.99	0.00	0.00	0.00
13,900.00	90.00	269.59	6,364.43	-1,404.93	1,369.27	-6,588.07	6,713.93	0.00	0.00	0.00
14,000.00	90.00	269.59	6,364.44	-1,404.94	1,368.56	-6,688.07	6,812.88	0.00	0.00	0.00
14,100.00	90.00	269.59	6,364.44	-1,404.94	1,367.85	-6,788.07	6,911.82	0.00	0.00	0.00
14,200.00	90.00	269.59	6,364.44	-1,404.94	1,367.14	-6,888.07	7,010.77	0.00	0.00	0.00
14,300.00	90.00	269.59	6,364.44	-1,404.94	1,366.43	-6,988.06	7,109.71	0.00	0.00	0.00
14,400.00	90.00	269.59	6,364.44	-1,404.94	1,365.72	-7,088.06	7,208.66	0.00	0.00	0.00
14,500.00	90.00	269.59	6,364.44	-1,404.94	1,365.01	-7,188.06	7,307.60	0.00	0.00	0.00
14,600.00	90.00	269.59	6,364.44	-1,404.94	1,364.30	-7,288.06	7,406.55	0.00	0.00	0.00
14,700.00	90.00	269.59	6,364.45	-1,404.95	1,363.59	-7,388.05	7,505.49	0.00	0.00	0.00
14,800.00	90.00	269.59	6,364.45	-1,404.95	1,362.88	-7,488.05	7,604.44	0.00	0.00	0.00
14,900.00	90.00	269.59	6,364.45	-1,404.95	1,362.17	-7,588.05	7,703.38	0.00	0.00	0.00
15,000.00	90.00	269.59	6,364.45	-1,404.95	1,361.47	-7,688.05	7,802.33	0.00	0.00	0.00
15,100.00	90.00	269.59	6,364.45	-1,404.95	1,360.76	-7,788.04	7,901.27	0.00	0.00	0.00
15,200.00	90.00	269.59	6,364.45	-1,404.95	1,360.05	-7,888.04	8,000.22	0.00	0.00	0.00
15,300.00	90.00	269.59	6,364.46	-1,404.96	1,359.34	-7,988.04	8,099.16	0.00	0.00	0.00
15,400.00	90.00	269.59	6,364.46	-1,404.96	1,358.63	-8,088.04	8,198.11	0.00	0.00	0.00
15,500.00	90.00	269.59	6,364.46	-1,404.96	1,357.92	-8,188.03	8,297.05	0.00	0.00	0.00
15,600.00	90.00	269.59	6,364.46	-1,404.96	1,357.22	-8,288.03	8,396.00	0.00	0.00	0.00
15,700.00	90.00	269.59	6,364.47	-1,404.97	1,356.51	-8,388.03	8,494.94	0.00	0.00	0.00
15,800.00	90.00	269.59	6,364.47	-1,404.97	1,355.80	-8,488.03	8,593.89	0.00	0.00	0.00
15,900.00	90.00	269.59	6,364.47	-1,404.97	1,355.09	-8,588.02	8,692.83	0.00	0.00	0.00
16,000.00	90.00	269.59	6,364.47	-1,404.97	1,354.38	-8,688.02	8,791.78	0.00	0.00	0.00
16,100.00	90.00	269.59	6,364.47	-1,404.97	1,353.68	-8,788.02	8,890.72	0.00	0.00	0.00
16,200.00	90.00	269.59	6,364.48	-1,404.98	1,352.97	-8,888.02	8,989.67	0.00	0.00	0.00
16,300.00	90.00	269.59	6,364.48	-1,404.98	1,352.26	-8,988.01	9,088.61	0.00	0.00	0.00
16,400.00	90.00	269.59	6,364.48	-1,404.98	1,351.55	-9,088.01	9,187.56	0.00	0.00	0.00
16,500.00	90.00	269.59	6,364.49	-1,404.99	1,350.85	-9,188.01	9,286.51	0.00	0.00	0.00
16,600.00	90.00	269.59	6,364.49	-1,404.99	1,350.14	-9,288.01	9,385.45	0.00	0.00	0.00
16,700.00	90.00	269.59	6,364.49	-1,404.99	1,349.43	-9,388.00	9,484.40	0.00	0.00	0.00
16,800.00	90.00	269.59	6,364.49	-1,404.99	1,348.73	-9,488.00	9,583.34	0.00	0.00	0.00
16,900.00	90.00	269.59	6,364.50	-1,405.00	1,348.02	-9,588.00	9,682.29	0.00	0.00	0.00
<b>BHL: 305ft FNL &amp; 300ft FWL of Sec 24</b>										
<b>16,992.45</b>	<b>90.00</b>	<b>269.60</b>	<b>6,364.50</b>	<b>-1,405.00</b>	<b>1,347.37</b>	<b>-9,680.45</b>	<b>9,773.76</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Planning Report

<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well HUNT FED 8-60 19-24-1
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 4959.50usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 27' @ 4959.50usft
<b>Site:</b>	SE NE SEC. 19 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HUNT FED 8-60 19-24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
509.50	509.50	Fox Hills Base		0.00	
1,556.25	1,547.50	Pierre Shale Top		0.00	
3,579.36	3,401.50	Richard Sandstone		0.00	
3,713.52	3,523.50	Parkman Sandstone		0.00	
4,526.17	4,262.50	Sussex Sandstone		0.00	
5,026.62	4,721.50	Shannon Sandstone		0.00	
5,874.13	5,549.50	TeePee Buttes		0.00	
6,554.77	6,188.50	Sharon Springs		0.00	
6,607.05	6,224.50	Niobrara Top		0.00	
6,884.83	6,349.50	Niobrara B2 Chalk Top		0.00	
6,940.48	6,359.50	Niobrara B2 Chalk Target Top		0.00	
7,016.25	6,364.50	Niobrara B2 Chalk Landing Point		0.00	

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 1722ft FNL & 570ft FEL of Sec 19
800.00	800.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2,029.08	1,991.72	221.60	135.30	EOB TO 24.58° INC
4,787.14	4,499.82	1,200.83	733.17	END OF TANGENT
6,016.22	5,691.54	1,422.43	868.47	EOD TO VERTICAL
6,116.22	5,791.54	1,422.43	868.47	KOP (10°/100ft BUR)
7,016.25	6,364.50	1,418.33	295.51	HZ LP: 305ft FNL & 300ft FEL of Sec 19
16,992.45	6,364.50	1,347.37	-9,680.45	BHL: 305ft FNL & 300ft FWL of Sec 24